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Maritime Illegal Oil Trading and Per Capita Income in Nigeria

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Abstract
This paper evaluates the effect of illegal oil trading on the level of per capita income in Nigeria between 1995 and 2012. By employing the e-views econometric software, the unit root, co-integration and granger causality tests were carried out on the secondary data set, to make it amenable to the application of the vector autoregressive (VAR) modeling of the ordinary least square multiple regression. It was revealed, among others, that a significant relationship exists between the illegal oil trading and the level of per capita income in Nigeria. The paper further revealed that the volume of oil theft as an explanatory variable met the a priori expectation with its negative coefficient but together with the one-year lagged variables of the dependent variable was statistically significant in terms of contributions to the dependent variable. On the whole, the study concludes that illegal oil trading has a negative effect on the level of per capita income in Nigeria. The paper hence suggests judicious utilization and equitable distribution of oil wealth and job creation as a panacea to small scale oil theft and capital punishment as a solution to large scale oil theft which will eventually translate to appreciable level of per capita income in Nigeria.
Keywords: Per capita income, illegal oil trading, econometric, unit root, co-integration, granger causality.

1. Introduction

Oil theft, also known as illegal bunkering, is the act of hacking into pipelines to steal crude which is later refined or sold abroad (Ugwuanyi, 2013). It is an illicit trade that involves the theft of crude oil and its derivative products through a variety of mechanisms. Asuni (2009) refers to oil theft as oil taken from pipelines or flow stations, as well as extra crude oil added to legitimate cargo that is not accounted for. In support of the above positions, Obasi (2011) asserts that "illegal oil bunkering" as used in Nigeria is a generic term encompassing not only unauthorized loading of ships but also all acts involving the theft, diversion and smuggling of oil".
Ikelegbe (2005) noted that:

''There is a large scale illegal local and international trading on crude oil. This has grown from a few amateurs in the 1980s who utilized crude methods to extract crude from pipelines to a very sophisticated industry which uses advanced technologies to tap crude and sophisticated communications equipment to navigate through the maze of hundreds of creeks, rivers and rivulets. The oil theft syndicates have also graduated from boats and barges to ships and large oil tankers in the high seas. The stealing and smuggling of crude has become very extensive and large scale since the late 1990s''.

The import of the foregoing is that crude oil theft is any activity relating to the theft or sabotage of crude oil, facilities or installations in form of illegal bunkering, pipeline vandalism, fuel scooping, illegal refining, etc. Illegal oil bunkering is the most commonly known form of oil theft and it involves direct tapping of oil.

The rise of oil theft in the Nigerian maritime domain in recent times is very alarming. Currently, Nigeria is losing over 300,000 barrels of crude oil per day to oil theft, pipeline vandalism and related criminal vices in the oil sector (Akpan 2013; Olusola, 2013; Odemwingie and Nda-Isaiah, 2013; Okere, 2013). In spite of the efforts of the Federal government to curtail the situation by increasing its security spending in recent years and devoting millions of naira annually to hire private security firms as well as equipping men and officers of the Nigeria Security and Civil Defence Corps (NSCDC), incessant destruction of pipelines and other oil facilities as well as trade in stolen oil by criminal cartels with international connections have continued unabated (Ugwuanyi, 2013; Mernyi, 2014). This indicates that the huge investments of public funds on the safety of oil facilities have not yielded the desired results. Thus, the Nigerian economy is in an uncertain situation. She is facing an economic emergency unprecedented among the oil producers of the world. Something urgent needs to be done to reverse the ugly trend. For instance, Nigeria has been tagged the most country plagued by oil theft among her contemporaries of Indonesia, Russia, Iraq and Mexico. Statistics of oil theft among these major oil-producing countries shows that Nigeria is losing as much as 400,000bpd which is equivalent to losses of US$1.7billion a month (Dalby, 2014). This is a colossal loss compared to a total theft of 5,000 to 10,000bpd and just 2,000 to 3,000bpd in Mexico and Indonesia respectively (Dalby, 2014). Thus, oil theft or illegal oil trading in the Nigeria's maritime domain poses a challenge that threatens the very foundation of the oil industry and by extension the Nigerian economy (Garuba, 2012).

There are various factors engendering the persistent thriving oil theft activities in the Nigeria's

maritime domain. Adegbite (2013) states that there are many perceived reasons for engaging in crude oil theft. The reasons which vary from the mundane to the absurd include (a) poverty; (b) greed; (c) lack of respect for national economic survival; (d) get rich syndrome; (e) lack of gainful employment ; (f) exploiting the loopholes in the criminal justice system to circumvent the law ; (g) evolving culture of impunity from the wrong perception that some people are above the law; (h) weak institutional structure to checkmate criminals; (i) malice; and (j) bad governance (corruption, incompetency), just to mention a few. Igbuku (2014) also identifies some of the underlying causes of this scourge to include poverty, community-industry expectation mismatch, corruption, unemployment, ineffective law enforcement and poor governance. He adds that high unemployment, for instance has created a huge population of idle young people who are easily lured to oil related crimes. These crimes in turn are reinforced in the absence of clear deterrent measures, arising from the non-prosecution of alleged perpetrator.

Despite her vast resources, Nigeria ranks among the most unequal countries in the world, according to the United Nation. The poverty in the north is in stark contrast to the more developed southern states. While in the oil-rich south-east, the residents of Delta and Akwa Ibom complain and belief that all the wealth they generate flows up the pipeline to Abuja and Lagos There is not absolute disconnection between the regions with high poverty rate, obvious income inequality and the level of menace of insecurity from such regions. It must be emphasized that it remains a paradox that despite the fact that the Nigerian economy is growing, the proportion of Nigerians living in poverty is increasing every year. Poverty remains one of the critical challenges facing the population growth rate; while our average oil revenue per capita in the mid 1960s was US$33, our GDP per Capita was US$245. In the 2000s, our oil revenue per Capita had risen to US$325 but the GDP per Capita had remained at US$245. It impliedly means that the growth in oil revenue between 1960s and 2000s did not translate to any real economic development and improved standard of living (Olusegn, 2014).

Prevalent poverty in Nigeria webbed around joblessness and income inequality has conspired to exacerbate the country's security challenges. Also, some 120 million out of 160 million Nigerians live below N300 per day. "Nigeria's population is about 170 million and we have up to 120 million people living below N300 per day. If that is a yardstick upon which to judge poverty, then we are in a very drastic situation" (Olusegn, 2014).

There exist a dichotomy of wealth and poverty; there is a negative correlation between the Country's enormous wealth and the spread of poverty in the country. This relationship of disparity between the growth of the GDP and increasing poverty is an indication of a skewed distribution of wealth in the country. Furthermore, research has shown that almost forty million (40m) people of Niger Delta, over Ninety percent (90%) live in poverty state. Many thanks to the role played by the government through the 13% Derivative Fund, the NDDC and many other intervention funds. However, despite the allocations over the years, it had not really translated to development of life for the common people. Findings have suggested that oil in some regions is only able to make marginal positive contributions to the livelihood of the people. Also, economic growth is critical to poverty reduction (Olusegn, 2014).

The peculiarity of Nigerian economy signifies the critical state we are, where in the midst of huge government revenue; there is a contrast level of inequality and poverty. Localities where oil is actually located over time tend to suffer from lower economic growth and lower per capita incomes than the rest of the country. It is also pathetic that a high proportion of people living in oil-exporting countries, who are supposed to live in plenty, tend to remain poor…what a paradoxical sigh! (Olusegn, 2014). The objectives of this work were to establish the connection between maritime illegal oil trading on the level of per capita income in Nigeria and to raise prediction model on the relationship between the illegal oil trading and per capita income in Nigeria.

2. Methodology

This section deals with how data and the information used in the work had been gathered and analysed. It also deals with the research design, method of data collection and types of information generated. The study covered the period from 1995-2012.

2.1 Research Design

This study is designed to empirically investigate the illegal oil trading in the Nigerian maritime domain. Employing the E-views econometric software, the paper made use of the unit root, granger causality and co-integration tests in order to basically produce the regression model thus, corresponding to the core interest area of the study namely, the relationship between the illegal oil trading and the level of per capita income in Nigeria. This relationship describes the model 7.

2.2 Sources of Data

As already stated, this study is designed to empirically investigate the link between illegal oil trading in the Nigerian maritime domain and the level of per capita income in Nigeria during the period of 1995-2012. Only

secondary data were used in the analysis and were obtained from the publications of the Central Bank of Nigeria, National Planning Office, National Bureau for Statistics, the Nigeria National Petroleum Corporation (NNPC) and Nigerian Maritime Administration and Safety Agency (NIMASSA).

2.3 Data Analysis Methods

The data set were analyzed by using two approaches namely; the Descriptive Statistics and Inferential Statistics. While the inferential statistics were employed to analyse the formulated hypotheses, other objectives of the study were to a large extent realized with the use of descriptive statistics.

2.3.1Test of Hypothesis

The hypothesis formulated was tested with a linear regression model with ordinary least square properties. Hence, a multiple regression approach was adopted. The analysis involved model specification and testing of the hypotheses. For the hypothesis, we made the per capita income (GDPC) the dependent variable.

2.3.2 Test Statistics

The time series data for the period, 1995-2012, were fitted into the linear function. This was to enable us predict the level of each dependent variable (the per capita income, GDPC) that can be achieved given known levels of the illegal oil trading explanatory variables. The test statistics therefore, include the Coefficient of Correlation (R), Coefficient of Determination (R^2), the analysis of variance (ANOVA/F-ratio) and the t-distribution (t-test). While the ANOVA/F-test establishes the significance or otherwise, of the model as a whole, the coefficient of correlation seeks to test the strength or magnitude of the relationship between the dependent variable per capita income and the component of illegal oil trading as explanatory variable. The t-test seeks to test the extent of contribution or level of significance of the illegal oil trading explanatory variable to the dependent variable as we have in this study (per capita income).

2.3.3 Test of the Model Significance:

The first test carried out under the hypothesis testing was a test of the model significance. This seeks to test for the significance of the model as a whole. There are two ways to accomplish this; the analysis of variance or the coefficient of determination, R^2.

2.3.3.1 The Analysis of Variance Approach

This statistical tool aims at splitting the variations of a variable, for example, in the hypothesis, the per capita income (GDPC) regressand with its component parts, variations in the dependent variable (GDPC), that are accounted for by the explanatory variables (maritime illegal oil trading variables), regressors, that is, the different sources of growth in the per capita income (GDPC) as produced by the maritime illegal oil trading components; are called the *Explained Variations*. Other sources not thus explained are due to random or chance factors. These are estimates of the population disturbance variable 'u' and are represented by 'e', otherwise referred to as the *Residuals* or error term.

Table 1: A Hypothetical ANOVA Table

Source of Variation	Sum of Squares	Degree of Freedom	Mean Square Error	F-Statistic
Regression	$ESS = (R^2XTSS)$	K-1	$\frac{ESS}{K-1}$	$\frac{MS\ \Sigma_{ESS}}{MS\ \Sigma_{RSS}}$
Residual1	$RSS = \sum_{t=1}^{n}(e)^2$	N-k	$\frac{RSS}{N-K}$	F-Tabulated
Total Variation	$\sum_{t=1}^{n}(e)^2(GDP_{gt} - \overrightarrow{GDP}_{gt})^2$	N-1		Decision: if $F_{cal}>F_{tab}$ reject Ho and Accept Ha

For the hypotheses, the regression equations are presented thus;

$$GDPC_t = \beta_0 + \beta_1 VAS_t + \beta_2 VOS_t + U_t \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots 1$$

For example, rearranging equation 1 we have that;

$$U_t = GDPC_t - (\beta_0 + \beta_1 VAS_t + \beta_2 VOS_t) \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots 2$$

$$U_t^{\,2} = GDPC_t - (\beta_0 + \beta_1 VAS_t + \beta_2 VOS_t)^2 \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots 3$$

Summing both sides of equation 3 we get;

$$\sum_{j=1}^{n} U_t^{\,2} = \sum_{t=1}^{n}(GDPC_t - \beta_0 + \beta_1 VAS_t + \beta_2 VOS_t)^2 \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots 4$$

In the Regression, $\sum_{t=1}^{n} U_{gt}{}^2$ (estimate of the population disturbance), is given by $\sum_{t=1}^{n} e^2$ otherwise called the *Residual Sum Of Squares* (RSS) $\sum_{t=1}^{n}(GDPC_t - \overrightarrow{GDPC_t})^2$ is the sum of squares of the deviation of the per

capita gross domestic product ($GDPC_t$) variables from their mean. While the explained sum of squares (ESS) is gotten with the formula, $(ESS) = R^2X(TSS)$

Where; $R^2 = the\ coefficient\ of\ determination\ from\ the\ regression$

Therefore, $RSS = TSS - ESS$

2.3.3.2 The Coefficient of Determination, R^2 Approach

Another way to test for the model significance is through the coefficient of determination (R^2). The R^2 is calculated from the regression and it gives the proportion of the total variation in the dependent variable, actual per capita gross domestic product that is explained by the independent variables, here the various illegal oil trading components. R^2, from the sample is a statistical estimate of the population, e^2, (row squared). The value of R^2 ranges between 0 and 1;

-0.0	- - - -	-1.00	Inverse or negative variation
0.00	- - - -	0.29	Highly insignificant, positive
0.30	- - - -	0.49	Insignificant, positive
0.70	- - - -	1.00	Highly significant, positive

In setting up the test, the following hypothesis is tested:

HO:$\rho^2 = O$ i.e., the regressors, the growth in the illegal oil trading components, or sources of growth in the per capita gross domestic product, in a given year have no significant relationship with the actual growth of the per capita gross domestic product for that year.

HA$\rho^2 > O$ (One-tailed test of significance) i.e., at least, there is a significant relationship between one of the independent variables and the actual growth of the per capita gross domestic product.

2.3.3.3 Decision Rule

If F-ratio calculated is greater than the F-ratio tabulated or theoretical F, at alpha (α) – level of significance, and (K-1), (N-K), degrees of freedom, then we Reject Ho; and Accept Ha, and thus state that there is some truth in the estimated model (i.e. the regression model is significant since the regressors significantly account for the variation in the dependent variable ($GDPC_t$).

$$\text{Here, F (calculated)} = \frac{R^2/K-1}{1-R^2/N-K} \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots 5$$

2.3.4 Test of Significance of the Explanatory Variables, t-Test

Having established the significance of the estimated model, as a whole, next is to test the specific strengths of the various regressors in bringing about this result. This was carried out through the test on the estimated parameters of the regressors. The test-statistics or student t-test is calculated as follows:

$$\text{t-Test} = \frac{\beta_k}{Se(\beta_k)} \text{for K} = 1 - 6 \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots 6$$

Where;

β_k = Estimate of the population parameters for the regressors (i.e. illegal oil trading components)

$Se(\beta_k)$ = Standard error of the estimate

2.3.4.1 Decision Rule

If absolute value or $\left|\frac{\beta_k}{Se(\beta_k)}\right| > tn - k$ at $\frac{\alpha}{2}$ level of significance, we Reject H0 and Accept HA: to conclude that the variable belongs significantly to the model.

2.4 Model Specification

The dependent variable herein represented by the symbol $GDPC_t$ is regressed on the various components of illegal oil trading components figures for the corresponding period. These components of illegal oil trading are hereby represented as follows:

VAS_t = Total value of stolen oil in year t;

VOS_t = Total volume of stolen oil in year t;

The dependent variable, however, is as specified: $GDPC_t$ = Level of per capita income in year t;

2.5 Data Estimation

Here, we note that the data set was estimated by carrying out the following tests; unit root, co-integration and granger causality tests. While the unit root test sought to test for the stationarity of the data set, so as to not produce spurious results, the informational content of the model were confirmed by the use of the co-integration test which helped to establish the nature of the model, whether short- or long-run relationships existed among the variables of the model. Finally, with the granger causality test, the direction of the effects was thus established.

3. Data Presentation and Analysis

As aforementioned, the data set for our estimation was generated from the websites of the NIMASSA, the CBN

and various publications from other related agencies, comprising of Nigeria data set on volume of oil theft, value of oil theft, gross domestic product and the per capita gross domestic product for the period, 1995-2012.

Table 2: Volume of Oil Theft, Value of Oil Theft, GDP, Per Capita Gross Domestic Product

S/N	YEAR	VOS	VAS	GDP	GDPC	UNRATE
1	1995	229565000	91.76	1933211.6	256	1.9
2	1996	230031800	111.74	2702719.1	313	2.8
3	1997	257947000	107.56	2801972.6	314	3.4
4	1998	249207600	76.26	2708430.9	272	3.5
5	1999	257791600	105.13	3194015	288	17.5
6	2000	242350000	357.68	4582127.3	660	13.1
7	2001	337322415	821.7	4725086	679	13.6
8	2002	390463495	1079.1	6912381.3	682	12.6
9	2003	237250000	786.6	8487031.6	676	14.8
10	2004	193450000	812.8	11411067	727	13.4
11	2005	156950000	1161.6	14572239	783	11.9
12	2006	255500000	2240.6	18564595	804	13.9
13	2007	255500000	2304	20657318	832	12.7
14	2008	292000000	4056	24296329	862	14.9
15	2009	694925910	6655.5	24794239	889	19.7
16	2010	283078530	3525	33984754	926	21.1
17	2011	386091290	6975	37543655	973	23.9
18	2012	179514150	3239.5	39650864	1016	22

Source: NIMASSA, CBN, various years.

3.1 Estimation of Data

In this section, our objective is to establish the stationarity of the entire data set employed in the estimation. When a particular data set is found to be stationary, it then suffices that the data set can be relied upon for the estimation, having eliminated the possibility of spurious results.

Table 3: Unit Root Test for the Variables Employed

	Augmented Dickey-Fuller Unit Root Test			
Variable	**T-statistic.**	**Critical value**	**Order of Integration**	**Significance**
VOS	-3.527962	-3.052169	1(0)	5%
VAS	-8.649341	-3.920350	1(1)	5%
GDP	-3.287799	-3.065585	1(1)	5%
GDPC	-4.005954	-3.920350	1(1)	1%

Source**:** E-views 6.0 Econometric Package

3.2 Unit Root Test Result

The unit root test was carried out using the Augmented Dickey Fuller test in order to determine whether the data set was stationary and the order of integration. It could be observed from Table 3 that only the volume of oil was stationary at level. Other variables turned out to be stationary at first difference. Generally, the data set can be relied upon for analysis as it shows no evidence of producing spurious results.

3.3 The Co-integration Result

Having established the stationarity of the data set, the Johansen co-integration test was applied, which adopts no exogenous variables as it is based on the vector auto regression (VAR) modeling. Here, we try to establish the presence of a short or long-run equilibrium existing between the variables and hence the estimated regression equation results. This result is as presented in Table 4.

Table 4: Co-integration and Test Results

	Johanssen Co-integration Test		
Model		Number of Co-integrating Equations	Nature of Equilibrium
1	Maritime Illegal Oil Trading and Per Capita Income	Nil	Short-run
2	Maritime Illegal Oil Trading and Unemployment Rate	Nil	Short-run

Source**:** E-views 6.0 Econometric Package

In Table 4, model 1 and 2 show evidence of no co-integrating equation and a short-run relationship existing between the variables.

3.4 The Granger Causality Results

The results here do show that most of the pairs of variables have not, in fact produced significant causal effects. However, we observe a one-directional effect from the level of unemployment to the per capita income. More specifically, the level of unemployment granger causes the per capita income (GDPC) at 1%.

3.5 Hypotheses Testing

3.5.1The Influence of Illegal Oil Trading On Per Capita Income of Nigeria

Here, one lead equation is to be estimated and the hypothesis states as follows:

H0: There is no significant relationship between the level of Maritime Illegal Oil Trading and Per Capita Income in Nigeria

The sub-hypotheses from H0 are as follows;

$H0_a$: The value of Maritime Illegal Oil Trading has no significant effect on the level of Per Capita Income in Nigeria.

$H0_b$: The volume of Maritime Illegal Oil Trading has no significant effect on the level of Per Capita Income in Nigeria.

$H0_c$: The one-year lagged variable of Per Capita Income has no significant effect on the Per Capita Income in Nigeria.

Table 5: Global Statistics for the Influence of Illegal Oil Trading on Per Capita Income

Test-statistic	**MODEL LEAST SQUARE,WITH LAG**
R-square	0.889
Adjusted R-square	0.862
S.E of Regression	91.45772
Sum of squared residual	108738.7
Log likelihood	-98.61162
Durbin-Watson stat	1.930353
Mean depend. Var	688.0000
S.D. depend. Var	246.9147
Akaike info criterion	12.071
Schwarz criterion	12.268
Hannan-Quinn criterion	12.091
F-statistic	34.54002
Prob(F-statistic)	0.000002

NB:*** = significant at 1%; ** = significant at 5%; * = Not significant. F-ratio tabulated DF (3, 14); 1% = 5.56,
5% = 3.34, t-ratio DF (14); 1% = 2.98, 5% = 2.14.
Source: E-views 6. Statistical Package

Table 5. above shows the results of the global statistics as produced under the model above.

3.5.2 Test of Model Significance – ANOVA

In order to confirm the specification status of our model, we made use of the ANOVA. The aim of using this method was to split the total variations of a variable (around its mean) into components which may be attributed a specific (additive) causes. For instance, variations in the dependent variable (GDPC) which are accounted for by the explanatory variables (maritime illegal oil trading variables)-independent variables, that is, the different sources of growth in the GDPC as produced by the maritime illegal oil trading components. To simplify the analysis we assumed that there was only one systematic factor influencing the variable being studied. Any

variation not accounted for by this (explanatory) factor was assumed to be random or (chance) variation, due to various random happenings.

3.5.3 Decision Rule

Employing the E-views software, we have that F–ratio calculated (34.54) > F–ratio critical (5.56, 3.34), at both 1% and 5% levels of significance respectively, Since F–ratio calculated is greater than the critical F–ratio, we reject H0 to draw a conclusion that there is a significant relationship between the level of maritime illegal oil trading and per capita income in Nigeria. The estimated regression result is presented as follows:

$$GDPC_t = 191.2654 + 0.021351_t - 2.23E07VOS_t + 0.80715GDPC_{t-1} \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots 7$$

3.6 The Impact of Maritime Illegal Oil Trading On Per Capita Income (Sub-Hypotheses)

The sub-hypotheses from H0 are as follows;

$H0_a$: The value of Illegal Oil Trading has no significant effect on the level of Per Capita Income in Nigeria.

$H0_b$: The volume of Illegal Oil Trading has no significant effect on the level of Per Capita Income in Nigeria.

$H0_c$: The one-year lagged variable of Per Capita Income has no significant effect on the Per Capita Income in Nigeria.

Having tested the significance of the model, we had to go a step further to test the significance of the maritime illegal oil trading in contributing to the total variation in the level of per capita income. This was achieved through the use of the student t-test (refer to the regression result in Table 6). From Table 6, only the one-year-lagged variable of per capita income proved to be significant contributors to the level of per capita income since the t-ratio calculated (5.25) > t-ratio critical (2.98, 2.14) at both 1% and 5% levels of significance, respectively.

Table 6: T- Statistic Table-Per Capita Income

Variable / Test Statistic	X_1,Value of Oil Theft, VAS_t	X_2,Volume of Oil Theft, VOS_{t-1}	X_3,One-year Lagged Variable of Per Capita Income, $GDPC_{t-1}$
Coefficient of the Variable	0.021351	-2.23E-07	0.804715
Standard Error	0.021932	2.67E-07	0.153392
T-Statistic Calculated	0.973488 NS	-0.833376 NS	5.246148 ***
T-Statistic Tabulated 1%	2.98	2.98	2.98
T-Statistic Tabulated 5%	2.14	2.14	2.14
Significance	0.35	0.42	0.00

NB:*** = significant at 1%; ** = significant at 5%; * = Not significant. T-ratio DF (14); 1% = 2.98, 5% = 2.14.
Source: E-views 6.0 Statistical Package.

4.0 Results and Discussion

This section considered the relationship between maritime illegal oil trading robbery and the level of per capita income in Nigeria. This result revealed that a significant relationship actually exists between illegal oil trading and the level of per capita income, with only the one-year lagged variable of the per capita income exerting a significant effect on the level of per capita income in Nigeria. In addition, this model, with an R-squared of 88.9% has shown that the changes in the explanatory variables taken together, have been able explain at least, 88% of the total variations in the dependent variable, per capita income, thus, leaving only about 12% to chance occurrence. The estimated regression result is presented thus;

$$GDPC_t = 191.2654 + 0.021351_t - 2.23E07VOS_t + 0.80715GDPC_{t-1} \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots 7$$

From model 7 above, only the volume of maritime illegal oil trading, met the a priori expectation, with its negative sign.

5.0 Conclusion

This paper basically focused on the impact of illegal oil trading on the level of per capita income in Nigeria, covering the period, 1995-2012. Having this as the objective in mind, study found that a significant relationship exists between maritime illegal oil trading and the level of per capita income in Nigeria and that only the volume of illegal oil trading met the a priori expectation with its negative coefficient and effect on the level of per capita income in Nigeria. Thus, this study has been able to empirically determine the relationship existing between illegal oil trading and the level of per capita income in Nigeria. Therefore, through the determination of this relationship, prediction model was produced for predicting the level of per capita income to attain given that level of oil theft or illegal oil trading is known. The paper hence suggest judicious utilization and equitable

distribution of oil wealth and job creation as a panacea to small scale oil theft and capital punishment as solution to large scale oil theft which will eventually translate to appreciable level of per capita income in Nigeria.

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